THE LIFE-HISTORY OF STENOPTILIA SAXIFRAGAE, FLETCHER.

By Bryan P. Beirne, Ph.D., F.R.E.S., F.L.S.

(Plate IV.)

In a previous article (*Ent. Rec.*, lii, p. 61, 1940) I gave some notes on the habits of the young larva of this species and since then I have had the opportunity of observing the life-history in greater detail. The eggs are laid singly on the undersides of the leaves of mossy Saxifrage towards the middle or end of July. The egg is ovoid and flattened, the head end being rather blunter than the tail end, the surface is somewhat wrinkled and has a pearly lustre; when first laid the egg is yellowish but it becomes greenish later. It hatches in about ten days and the young larva makes its way to the base of a leaf and burrows into it. During the next six weeks or so the larva mines several leaves and during September burrows into the stem of a shoot near the tip of which it forms a cocoon-like hibernaculum; this usually results in the death of the shoot-tip.

In the Spring the larva resumes feeding and continues to mine the leaves and stems until it grows too large for this; it particularly prefers the young buds. The larvae may be obtained by collecting the mined shoots and keeping them until they emerge to feed in the open as they are very difficult to discern in the mined shoots. Towards the end of May they leave their burrows in the shoots and live externally on the leaves. They are very sluggish in their movements and, owing to their closely resembling the food plant in colour, they are not easy to find; they apparently feed at night. The description of the mature larva (Fig. *a*) is as follows:—10 mm. long; rather stout and tapering somewhat posteriorly, the segmental divisions well marked. Setae long and numerous, usually in groups of three, each arising from a small tubercle and clubbed at their apices (Fig. *b*); dark reddish-brown in colour, except for the three just above the legs which are whitish. Head pale brown with darker brown markings; body yellowish-green, matt, with a pale yellowish band on either side below the spiracles, often with a reddish dorsal band down the back, and the anterior segments marked with reddish, or with two pale yellowish dorsal bands, or with both.

When full-grown the larva spins a small silken mat on the food plant on which it pupates, the pupa being attached, usually head downwards, to this mat by two sets of hooks, one at the cremaster and the other just anterior to the genital openings (Fig. *d*). The pupae show considerable protective resemblance to the food plant, those on the dead leaves usually being dark brownish with reddish markings and those on the green shoots being yellowish-brown with pale markings. The description of the pupa (Fig. *c*) is as follows:—8-9 mm. Thoracic and anterior abdominal segments with two dorsal ridges, converging slightly anteriorly; the ridges continued on the middle and posterior abdominal segments as two pairs of short spines on each segment. Pale yellowish-brown to dark brown in colour, the legs, antennae and wing-cases darker; a yellowish band on either side of the abdomen and usually also another just lateral to the dorsal ridges; in paler specimens there is often a reddish dorsal stripe.

The pupal stage is comparatively short, lasting a fortnight or three weeks and the adults emerge mainly during July. They are abundant

where they occur, that is, in gardens around Dublin, and may be most easily captured when at rest on the Saxifrages and neighbouring plants during the evening. During the day they hide amongst the plants and fly at and after dusk and are attracted by light.

EXPLANATION OF PLATE.

Immature stages of *Stenoptilia saxifragae*: *a*, Mature larva, dorsal view; *b*, Setae of larva: *c*, Pupa, lateral view; *d*, Terminal abdominal segments of (? female) pupa, ventral view; *e*, Setal map of seventh segment of mature larva.

THE DISTRIBUTION AND HABITS OF CALLOPHRYS RUBI, L., IN THE ISLE OF RHUM.

By J. W. Heslop Harrison, D.Sc., F.R.S.

In my original paper dealing with the Lepidoptera of the Small Isles Parish of Inverness-shire (*Proc. Univ. Durham Phil. Soc.*, xi, Pt. I, pp. 10-23) I was compelled to report that all attempts to sweep larvae of *Callophrys rubi* from various moorland plants in the Isle of Rhum had entirely failed. However, in 1939, when we made a prolonged stay on the Island, the presence of the insect was definitely proved in the Askival-Hallival area, for our sweeping operations on the moorlands there ended in the capture of larvae in some numbers. This discovery, nevertheless, left the exact range of the insect on Rhum a matter of complete uncertainty. Hence, when we visited the island during May and June of this year for the purpose of carrying out certain essential work, advantage was taken of the opportunity to remedy the deficiency.

In view of the necessity for spreading our forces over as wide an area as possible, my first journey was undertaken alone, when I penetrated the upper gorges of the Allt Mor na h-Uamha and other dry ravines close by. These, of course, are simply extensions of the original Hallival localities. Throughout these areas the insect abounded, in general frequenting *Vaccinium* areas, but sometimes restricting its attentions to heather (*Calluna vulgaris*) and *Empetrum*.

Although I kept a sharp lookout, I rarely saw it visiting flowers; its feeding activities seemed to be concentrated on honeydew on birches from which it was beaten quite unexpectedly. As I reached the sea near the Bagh na h-Uamha, *Callophrys rubi* thinned out, to increase again steadily as I passed Rudha Port na Caranean and skirted the southern shore of Loch Scresort.

A few days later my work took me toward the deserted village (also on south shore of the Loch) where a small wood exists. Here, between the wood and the rocky moorland slopes, bilberry abounds, and consequently clouds of *C. rubi* were encountered revelling in the hot sun. Obviously, they were attached to the *Vaccinium*, but, despite careful examination, only one insect was observed to approach that plant. Most of them were haunting the patches of bluebells (*Scilla non-scripta*). As this seemed an unusual circumstance, I sat down on a rock and watched their gyrations when I made the surprising discovery that they were settling on the outsides of the flowers, and sucking an exudation, or secretion, formed at the base of the perianth segments. A few, however, preferred the Rhododendrons, and simply plunged headlong into